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# The Positive Impact of African Drumming on Elderly Participants' Mood and Demeanour

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## Abstract

This article reports on a study that examined the effects of African drumming on the mood and demeanour of older individuals, both those with and those without dementia, in Hong Kong. Previous research indicated that music-making has a positive effect on older adults' overall health and well-being. The study participants' mood and demeanour were measured through observer and self-rating before and after taking part in one of three African drumming sessions. There was a significant improvement in all aspects of all the participants' mood and demeanour after participating in the drumming sessions. A positive impact of the drumming session was also found on the caregivers. The drumming sessions involved physical activity, skill acquisition, reminiscence, joint music making and social interaction that all could have led to the large positive changes in mood and demeanour found in the study participants.

**Keywords:** African drumming; mood; demeanour; cognition; dementia; elderly

## The Positive Impact of African Drumming on Elderly Adults' Mood and Demeanour

By 2050, the ageing population of people 60 years or older is expected to increase by approximately 2.1 billion worldwide (United Nations 2015). The increase in life expectancy due to medical and technological advances is a positive change, although this increase may cause need for additional interventions and treatments for progressive diseases, such as dementia, which affect the elderly population. According to the World Health Organization (WHO 2019), dementia is the deterioration of human cognitive function beyond that which can be expected from normal ageing, with Alzheimer's Disease (AD) being one of the most common forms of dementia. Over 50 million people are diagnosed with dementia worldwide, often experiencing negative effects on the quality of their life, as well as that of their family members and caregivers (WHO 2019). Improving elderly individuals' social, physical and psychological well-being has been the focus for the development of interventions for them, especially for those living in institutional and long-term health care settings where well-being problems can be exacerbated (Fleming Cottrell and Gallant 2004).

In the current study, we examined the impact of African drumming on an elderly population in Hong Kong. We measured the overall impact of a single drumming session on the participants' mood and demeanour – level of interest, responsiveness, initiation of behaviour, involvement and enjoyment – before and after the session. Mood is a reference to an individual's temporary state of feeling, while demeanour refers to the individual's outward look and behaviour. We hoped that the intervention would have a positive impact on all the participants, including those with and those without dementia. Although research has not determined whether musical activities can prevent dementia and AD in late adulthood, improvements have been shown in memory and recall performance, depressive symptoms and mood in participants already experiencing dementia (Seinfeld et al. 2013). In general, music has been found to have a positive effect on demeanour in all elderly participants, whether or not they are experiencing dementia (Hays and Minichiello 2005).

Hong Kong, a former British colony, established elderly care in the 1970s and modelled their health and social services after the United Kingdom (Woo 2007). According to the Hong Kong Government Department of Census and Statistics (Hong Kong Government 2020), in 2019 the population of Hong Kong was approximately 7.5 million people with the elderly (those above the age 65) accounting for almost 17 per cent of the population. Approximately 10 per cent of this group reside in community and special care centres spread across Hong Kong and the Special Administrative Region (SAR). The needs of the elderly, including but not limited to physical and mental health, place a tremendous strain on the government. Accordingly, the Hong Kong government strongly advocates for interventions, such as music and physical exercise, to be incorporated into the daily routines of the elderly.

Musical activities that have been implemented in elderly care settings have yielded positive benefits for older adults' overall well-being and have the benefit of being a nonpharmacological approach to care (Ashida 2000; Chan et al. 2009). There are several types of music interventions for the elderly. The first type of intervention, listening to music from earlier in the participants' life, has benefits for cognition, including boosts in attention and memory (Thompson et al. 2005). The second type, reminiscence music therapy, also involves listening to music but adds music making and discussion during the sessions and has been found to improve the participants' mood (Ashida 2000). The third type, therapeutic music intervention, which involves music-making and moving along with the rhythm, has been found to decrease the anxiety and agitation that is often associated with dementia (Gómez Gallego and Gómez García 2017; Ray and Mittelman 2017; Sung et al. 2012; Suzuki et al. 2004).

In general, musical activities have also been shown to significantly increase participants' self-esteem and to lower depression, especially for those who take part in repeat sessions (Cooke et al. 2010). Participants in music-making activities report feeling as though they are involved in a purposeful activity that has positive effects on their physical, mental and emotional health (Hallam and Creech 2016). As well as improving their mood, music and percussion programmes can help to maintain their cognitive function and lead to improvements in memory and recall (Chu et al. 2014).

Specific to our interests, drumming programmes, such as the Elders Drum Project, have been found to increase quality of life, health status, and self-concept for participants living in long-term care (Fleming Cottrell and Gallant 2004). Positive effects of percussion-based interventions have been found to last more than four weeks after completion of the group sessions (Climent et al. 2012).

One potential reason for the positive enhancement of mood found in elderly adults taking part in joint percussion and music-making interventions is the increased social interaction that is a major component of the intervention (Harmon and Arpajian 2019; Perkins et al. 2016). Drumming groups provide individuals with a therapeutic way to cope with their feelings through joint creative expression, increasing satisfaction and happiness (Fleming Cottrell and Gallant 2004). Music-making programmes have also been found to increase individuals' feelings of autonomy and improve their emotional well-being, and have been associated with positive social outcomes (Creech et al. 2013; Sol et al. 2014).

The physical nature of drumming interventions could also help to explain the positive gains found in cognition. Aerobic exercise can help to increase cognitive control in elderly adults (Kramer et al. 1999). Physical activity appears to cause gains in the elderly in regions of the brain associated with memory, emotion and learning (Erickson et al. 2011; Niemann, Godde and Voelcker-Rehage 2014). Similar to aerobic exercise, group drumming has positive effects on physical and mental health, including gains in range of motion, strength, coordination, and cognitive functioning (Fleming Cottrell and

Gallant 2004). Additionally, the acquisition of a new skill that is central to music programmes has been associated with improvements in verbal fluency and executive functioning (Bugos 2010; Seinfeld et al. 2013).

Drumming and musical programmes have also been found to be helpful for caregivers. Taking part in these programmes along with the patients can help to decrease the stress associated with taking care of patients with dementia (Clair and Ebberts 1997; Götell, Brown and Eckman 2000). Reducing stress in the caregivers is important because high stress can cause a decrease in the quality of care (WHO 2019). Drumming and music interventions also provide an opportunity for positive social engagement for all of those impacted by the disease (Clair and Ebberts 1997; Götell, Brown and Eckman 2001). Both patients and caregivers exhibit increases in mood when jointly taking part in drumming and music programmes, including when the sessions are led by the caregivers (Hanser et al. 2011).

African drumming is deeply embedded in African culture, customs and religion. The practice of incorporating African drumming into African culture spans many generations and forms the basis for social cohesion and cultural celebration. The djembe drum is believed to have been introduced into African culture around 500 CE and was initially utilised for ritual healing ceremonies due to the sacred nature of the drum (Price 2013). African drumming has also become the bedrock for the oral transmission of African culture, history and ritual. In recent times, African drumming has expanded its reach internationally both in terms of entertainment and healing.

In the current study, we examined the impact of taking part in a single African drumming session for an elderly population – both those with and those without dementia – in Hong Kong. There is growing evidence of the important role that African drumming may have on physical and mental health (Friedman 2000; Longhofer and Floersch 1993). While firmly entrenched in African culture for centuries, the potential benefits of African drumming have steadily been acknowledged across North America, Europe, and, more recently, Asia.

Philip Leung, the founder of Sharings African Drumming Arena, initiated the programme several years ago and is credited with being one of the pioneers and principal promoters of African drumming in Asia. Over the past 25 years, the Sharings African Drumming Arena has introduced African drumming into the public school education system in Hong Kong, retirement homes, care and rehabilitation facilities and training institutions for social workers across Hong Kong, Macau, the SAR and Southern China. The net result has been the widespread incorporation and acknowledgement of African drumming as a social tool and potential intervention in the health and education sectors of Hong Kong and South China. We observed three separate, individual sessions of African drumming in three different locations in Hong Kong and measured changes in the participants' mood and demeanour over the course of each session.

## Methodology

### **Drumming Session**

The African drumming activity was developed by registered drumming therapist and instructor for these sessions, Philip Leung, of the Sharings African Drumming Arena. The participants were seated in a large circle for the 1.5-hour session which was the general duration of the drum sessions. The overall duration of the session was appropriate as it included a variety of activities including movement and singing. This was found to be conducive for the participants with mild dementia as the activities tended to be varied. To start, the participants and caregivers learned some simple drumming patterns in call and response form with the instructor. As the drumming progressed, singing was incorporated into the activity. Though the African drumming was a new skill for the participants, the singing employed phrases familiar to the participants. For the last half of the session, interaction with other participants was added. The participants moved the circle in closer so that they could touch the participants on either side of them. During the drumming and singing, the participants interacted with their neighbour through actions such as playing on their neighbour's drum or patting their neighbour on the back in time with the song. The activity involved physical activity, skill acquisition, joint music making, singing of familiar phrases, and interaction with other participants and the instructor.

The drumming sessions were grounded in African music-making principles and theories including communal music-making, verbalisation, movement, body percussion and social interaction, amongst others. The sessions included primarily African djembe drums and occasionally dundun and hand drums. Musical concepts included African rhythms, such as poly-rhythmic and cross rhythmic patterns, call and response patterns, imitation and improvised rhythms. The use of African traditional songs was incorporated into the sessions with the participants having to either sing along or imitate the instructor. Many of these songs were sung in their original African languages. Songs that were utilised included melodies with simple repetitive phrases and language that could be easily repeated by the participants. While an attempt was made to use easy songs and rhythms, the complexity of the sessions progressed from one activity, such as drumming, to multiple activities, such as drumming, singing and moving simultaneously.

### **Design**

The study was a quasi-experimental, pre-post design with measures of mood and demeanour taken before and after the drumming session. The participants with and without dementia were separated for analysis to ensure that the results were not driven by gains in only one of the groups of participants. The participants supplied self-ratings of mood and were assigned observer-ratings of mood and demeanour before and after the drumming session. Additionally, the caregivers taking part in the session supplied self-rating of mood during the session.

## Participants

In the three drumming sessions combined there were 27 participants (F = 21, M = 6; Age  $M = 76.2$ ,  $SD = 12.66$ , Range 52 to 94; session 1: N = 8, F = 7; session 2: N = 8, F = 5; session 3: N = 11, F = 9) in Hong Kong. Eighteen of the participants reported experiencing mild dementia (specific type of dementia was not noted; N = 3 in session 1, N = 8 in session 2, and N = 7 in session 3). The assessment of dementia was reported to the session leader by the participants' caregivers prior to the study being conducted. The criteria for dementia assessment were unavailable due to patient-caregiver confidentiality, so we were only provided with the overall caregiver assessment that some participants reported mild symptoms of dementia. Although the three sessions differed in composition, no differences in group responsiveness or interaction were noted. The content and duration of the drumming session did not differ for any of the groups.

The participants were recruited for the drumming group through advertisements at various retirement care centres across Hong Kong and the SAR. Centres that were part of the Sharings African Drumming Arena were targeted because the participants were already engaged in the African drumming programme. While there were no specific exclusion criteria, centres with larger drum groups were targeted. There were nine caregivers who, along with bringing the participants, took part in the drumming activity (N = 4 in session 1 and N = 5 in session 2). The caregivers volunteered and accepted to be a part of the data collection as many of them were elderly individuals and, secondly, many of them needed to accompany the participants due to the dementia some of them experienced.

## Measures

The participants rated their own mood using the 5-face visual analogue scale (VAS) ranging from 0 to 4 with pictures going from a frowning/sad face to a smiling/happy face representing mood (Navarro 2014). The participants simply circled the face that best depicted their current mood. This scale was chosen for the study because it needed no translation and very little explanation, which was helpful given that the sample was elderly participants, most experiencing mild dementia, and living in Hong Kong.

Observer-ratings were made using the Music in Dementia Assessment Scales (MiDAS) (McDermott, Orrell and Ridder 2015) which rates patients on a scale from 0 to 100 on five different aspects of their demeanour, namely, their: level of interest (attention to surroundings); response (interaction with others); initiation (intentional behaviour); involvement (participation with others); and enjoyment (expression of happiness). Each of the five aspects of demeanour was operationally defined by two or three specific, observable behaviours as a basis for rating. The MiDAS was chosen for the study because it specifically targets the aspects of behaviour likely to be influenced by a musically based intervention in patients with dementia. However, it should be noted that the MiDAS was designed to measure demeanour before and after each session for music

therapy interventions that last multiple sessions. In the current study, the first two authors acted as observers and measured the participants' demeanour before and after a single session. The observers rated each participant and agreement between the two observers, as measured by Intraclass Correlation Coefficients, was moderate ( $ICC = .653$ ).

## Procedure

Before each of the drumming sessions started, the participants filled out an informed consent form and then completed the 5-face VAS. At this time, the two observers filled out a MiDAS rating form for each participant independently and started in reverse order from each other. As the session was ending, the observers again filled out a MiDAS form and assessed each participant starting in reverse order. Finally, the participants filled out a second self-rating of mood using the 5-face VAS.

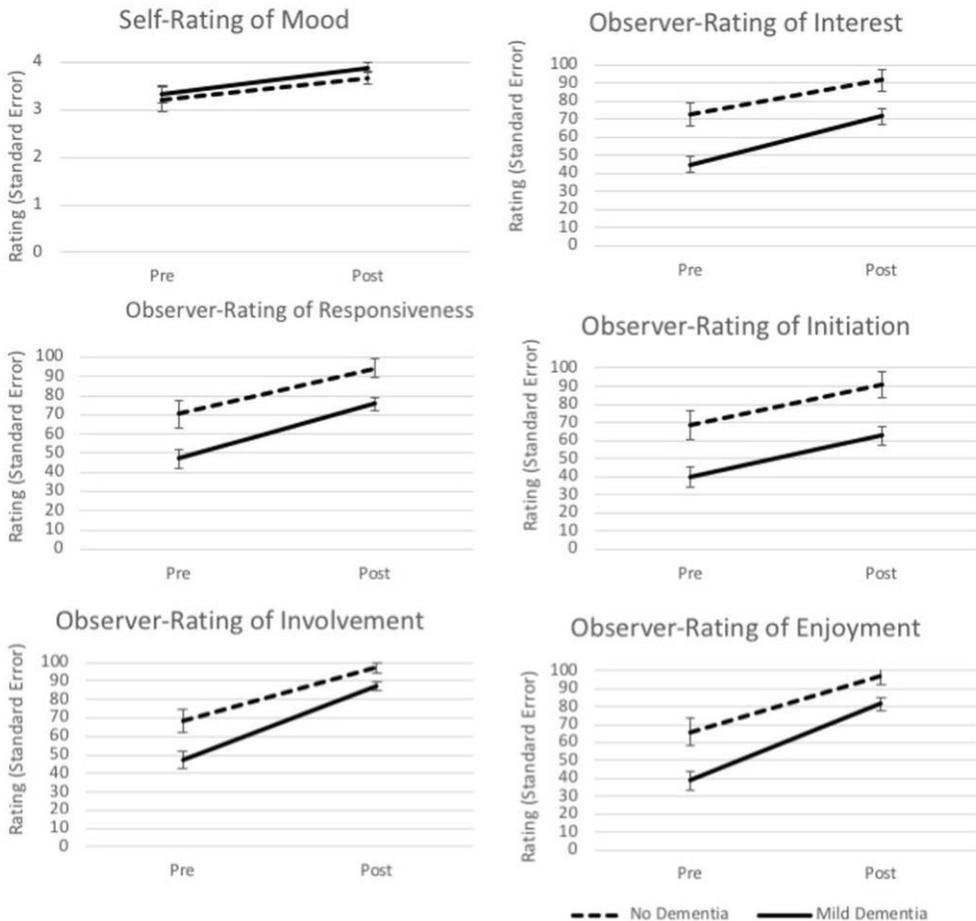
## Results

The observers examined the impact of taking part in a single, multi-faceted session of African drumming. Self-ratings of mood and observer-ratings of demeanour for the MiDAS were evaluated using mixed-model ANOVA: the within-subjects factor was the before and after ratings, and the between-subjects factor was the diagnosis of dementia. The participants were separated by diagnosis of dementia to make sure that the impact of the programme could be generalised to all types of participants. As can be seen in Figure 1, all measures exhibited a significant increase over the course of the session. There was a significant increase in: self-rating of mood ( $F(1,25) = 14.06, p = .001, \eta^2 = .36$ ); observer-ratings of interest ( $F(1,25) = 81.71, p < .001, \eta^2 = .77$ ); responsiveness ( $F(1,25) = 68.33, p < .001, \eta^2 = .73$ ); initiation ( $F(1,25) = 31.79, p < .001, \eta^2 = .56$ ); involvement ( $F(1,25) = 117.42, p < .001, \eta^2 = .82$ ); and enjoyment ( $F(1,25) = 110.88, p < .001, \eta^2 = .82$ ). The magnitude of the increase in mood and demeanour was large for all of the measures (Cohen 1988), with taking part in the African drumming session associated with 36 per cent of the variability in self-rating of mood and between 56 per cent and 82 per cent of the variability in observer-ratings of demeanour.

The increase in ratings was similar for the participants both with dementia and without dementia. However, as might be expected, the participants without dementia received higher ratings of interest ( $F(1,25) = 10.49, p = .003, \eta^2 = .30$ ), responsiveness ( $F(1,25) = 10.18, p = .004, \eta^2 = .29$ ), initiation ( $F(1,25) = 11.33, p = .002, \eta^2 = .31$ ), involvement ( $F(1,25) = 9.52, p = .005, \eta^2 = .28$ ), and enjoyment ( $F(1,25) = 8.95, p = .006, \eta^2 = .26$ ) than the participants with dementia (see Figure 1). This could be due to the fact that patients without dementia generally exhibit greater responsiveness by virtue of their responses not being impacted by the complications of dementia. There was no difference in self-rating of mood for the participants with dementia and without dementia ( $F(1,25) = .60, p = .45, \eta^2 = .02$ ). None of the interactions between the ratings and diagnosis of dementia were significant ( $ps > .08, \eta^2s < .12$ ). The drumming session

was successful in leading to large increases in all aspects of the participants' demeanour measured as well as increasing their own self-ratings regardless of diagnosis of dementia.

Self-rating of mood was collected for a number of the caregivers who also participated in the session. For the six caregivers for whom self-ratings were available (three caregivers only had one of the two ratings), there was a significant increase in mood from before ( $M = 3.17, SD = .75$ ) to after ( $M = 3.83, SD = .41; t(5) = -3.16, p = .025, d = 1.29$ ). Thus, the drumming session had a significant impact on all those involved, both the participants and their caregivers.



**Figure 1:** Measures of self-rating and observer-rating

## Discussion

The purpose of the study was to measure the impact of taking part in a single African drumming session on the mood and demeanour of older adults in Hong Kong. Previous studies have documented the positive benefits interactive music programmes and music therapy have on the elderly population (Ashida 2000; Clement et al. 2012; Fleming Cottrell and Gallant 2004), with therapeutic benefits of music-making on the physical, psychological, and social health of older adults and their caregivers (Clair and Ebberts 1997; Cooke et al. 2010; Creech et al. 2013; Hallam and Creech 2016; Hanser et al. 2011). In line with previous research on music interventions, the current study found that taking part in just a single African drumming session can be beneficial. The participants exhibited large, positive increases in all five categories of observer-ratings (interest, responsiveness, initiation, involvement, and enjoyment) over the course of the African drumming session. Similarly, there was a significant increase in self-rating of mood for the participants. Further, the positive increase in self-rating extended to the caregivers who also took part in the session. The African drumming sessions led to increased involvement, interaction, intentionality and enjoyment for both the participants experiencing dementia and those not experiencing dementia.

The success of the African drumming sessions can potentially be attributed to a number of different aspects. Previous research found that musical reminiscence (Ashida 2000; Chan et al. 2009); skill acquisition (Bugos 2010; Seinfeld et al. 2013); physical activity (Erickson et al. 2011; Kramer et al. 1999; Niemann, Godde and Voelcker-Rehage 2014); social interaction (Creech et al. 2013; Fleming Cottrell and Gallant 2004; Harmon and Arpajian 2019; Perkins et al. 2016); and music making in general (Clair and Ebberts 1997; Cooke et al. 2010; Creech et al. 2013; Hallam and Creech 2016; Hanser et al. 2011) all had positive impacts on the participants. The African drumming sessions under study incorporated all of these aspects, with the participants being physically active, learning a new skill, making joint music, singing familiar phrases, and interacting with other participants and the instructor. This combination of many different components could help to explain the large effect sizes found in the measures. Though the observers cannot say which specific aspects of the intervention had the greatest impact on the participants, they can say that their combination appeared to have a substantial overall impact. Future research could examine the impact of each of these individual aspects by altering the African drumming programme to leave out selected components one at a time and comparing the overall impact on the participants.

## Limitations of the Study

Limitations of the study were due to the design of the study. Firstly, there was no control group involved in the study. It is not clear how this activity compared to other activities and programmes available to this population. Secondly, the study participants were only observed and evaluated before and after participating in one drumming session. Therefore, we cannot comment on the long-term impacts of the programme. However,

the fact that such a sizable increase was found in a single session is very encouraging. At the very least, we can state that taking part in a drumming session was associated with immediate increases in mood and demeanour. Thirdly, expectancy effects could have influenced both the participants and observers. All involved were aware of the likely impact of the intervention and this awareness could have influenced their ratings. However, the observers were blind to whether or not the participants had dementia. The differences in observer-rating between those experiencing and those not experiencing dementia cannot likely be explained by expectancy effects.

## Conclusion

Given the positive impact found from a single African drumming session, future research should build on the current study by examining the long-term effects of African drumming sessions on older adults. Previous research has found that the impact of music interventions progressed over time and appeared to be long lasting (Chan et al. 2009; Clem nt et al. 2012). It needs to be determined whether the same is true for African drumming sessions. Future studies may also consider evaluating the effects of African drumming on physical and cognitive abilities, in addition to demeanour. Previous music programmes have found a positive impact on the participants' health (Fleming Cottrell and Gallant 2004) and cognitive functioning (Seinfeld et al. 2013). The physical movement and skill development that were central to the African drumming sessions could potentially lead to cognitive gains as has been found in previous studies (Kramer et al. 1999; Seinfeld et al. 2013; Thompson et al. 2005). For future studies examining the impact interventions, such as those employed in the current study on mood and demeanour, it should be noted that the 5-face VAS (Navarro 2014) and the MiDAS (McDermott, Orrell and Ridder 2015) were both shown to be useful measures.

The present findings indicated that taking part in a single African drumming session led to positive increases in mood and demeanour for older participants, both those experiencing and those not experiencing dementia. In addition, it provided a boost in mood for the caregivers and supplied an opportunity for positive interaction between the participant and the caregiver. The initial analysis of the African drumming sessions implied that they can be very beneficial, at least in the short term, and certainly warrant further investigation.

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